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ABSTRACT

The differential effects of the final revision of Levels 1 and 2 of the Peabody Language Development Kits (PLDK) on the Illinois Test of Psycholinguistic Abilities (ITPA) profiles of young disadvantaged black children were studied. Contrasted with 90 control subjects were 90 experimental subjects who received a daily 30-minute oral language stimulation exercise from the PLDK throughout the school year. The pretesting and interim testing were spread by eight months, while the pretests and posttests were administered 20 months apart. The study took place in elementary schools in a southern inner-city where over three-quarters of the pupils were black. The program was differentially effective only in the vocal expressive and auditory vocal sequential components of the ITPA as measured by the Vocal Encoding and Auditory-Vocal Sequencing subtests. This suggests that PLDK lessons should be coordinated with other grammatical exercises in order to achieve maximum improvement in the major oral language defects of the disadvantaged children of the type studied in this investigation. (Author/TS)

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DIFFERENTIAL EFFECTS ON THE ITPA PROFILE OF THE FINAL VERSION OF THE PEABODY LANGUAGE DEVELOPMENT KITS (LEVELS #1 AND #2) WITH YOUNG DISADVANTAGED NEGRO CHILDREN[1]

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One of the major efforts to develop programs designed to increase the oral language abilities of children has been the series of Peabody Language Development Kits. The lessons and materials comprising the experimental version of Level #1 of the series (Dunn & Smith, 1964) have been evaluated with a variety of subject populations. Formal research efforts have included studies of its effectiveness with the educable mentally retarded (Forgnone, 1966; Gibson, 1966; Dunn & Mueller, 1966; Dunn, Pochanart, & Bransky, 1967), the slow learner (Ensminger, 1966), the culturally disadvantaged (Carter, 1966; Bailey, 1966; Dunn & Mueller, 1966; Dunn & Pfost, 1967; Dunn & Mueller, 1967), and with normal kindergarten children (Milligan, 1966). The lessons and materials comprising the final (commercial versions) of Levels #1 and #2 of the series (Dunn & Smith, 1965, 1966) have been evaluated with a sample of young culturally disadvantaged children (Dunn, Neville, Bailey, Pochanart, & Pfost, 1967; Mercer, 1967). In each of these investigations the Illinois Test of Psycholinguistic Abilities (ITPA, McCarthy & Kirk, 1961) has been included as a primary instrument for the assessment of linguistic abilities.

The PLDK was developed as a method of general oral language stimulation, as opposed to a means of stimulating specific language abilities. Therefore, most investigators have concerned themselves with measurement of overall language growth, as measured by overall language age scores

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on the ITPA. However, several studies have investigated the relative effectiveness of this program in terms of the differential language skills represented by the ITPA subtests. Keehner (1966) found that a language development program based on the PLDK, but supplemented by additional activities, was equally effective in enhancing development in most of the areas measured by the ITPA. Mueller and Dunn (1966) found that the program was differentially effective in enhancing development among retarded children on the four ITPA subtests they utilized. In the latter study, the subjects tended to gain more on the Auditory-Vocal Association and the Visual-Motor Sequencing subtests than on the Auditory Decoding and the Auditory-Vocal Automatic subtests. Ensminger (1966), investigating the effectiveness of the PLDK with slow learning children who had school learning problems, also found that the program was differentially effective. His study suggests that increased language development tends to be reflected primarily on two ITPA subtests: Auditory-Vocal Association and Vocal Encoding. Dunn & Mueller (1967) employed the PLDK with young culturally disadvantaged children and found, as noted above, that the program was differentially effective, having its greatest effects on associative and expressive components of the ITPA (i.e., the Vocal Encoding and Auditory-Vocal Association subtests). In addition, they noted that the program was weakest in teaching receptive and automatic (non-meaningful) aspects of language.

The present study is based on data gathered for the Cooperative Reading Project (Dunn, Neville, Bailey, Pochanart, & Pfost, 1967; Dunn, Pochanart, Pfost, & Bruininks, 1968), an investigation designed to examine the relative effectiveness of three approaches to the teaching

of beginning reading and the influence of a general oral language stimulation program (specifically, Levels #1 and #2 of the PLDK) on children's development through their first two years in school, plus a follow-up year. The sample utilized consisted of 480 subjects--240 boys and 240 girls--from 12 public elementary schools in an inner-city area, the majority of whom were of the Negro race. Pretesting, with the ITPA and other tests, was performed at the outset of the 1965-66 school year, interim testing was done from April through June, 1966, and posttesting was accomplished during the period from April through June, 1967.

The present study used the ITPA protocols of 180 Negro subjects--90 experimental and 90 control subjects--equated on intelligence (experimental group's mean IQ = 87, control group's mean IQ = 89) and proportional regarding sex--randomly drawn from the CRP subject pool. These test protocols were analyzed for differences in gains over years as measured by the nine subtests. Group profiles of experimental and control subjects for each test period were examined. The following effects were anticipated: (1) the use of the PLDK would have a favorable effect on the ITPA total language age, (2) the use of the PLDK would have a positive overall effect on the ITPA subtest profiles, and (3) the use of PLDK would have a progressive overall effect on the ITPA subtest profiles over the two year intervention period.

Results

The primary statistical procedure involved a Type VI analysis of variance (Lindquist, 1953) to compare experimental groups with control groups in general. A series of *t* tests were utilized to detect differences between the groups on the individual subtest scores. The .95 level of confidence was employed.

Mean raw scores for experimental and control groups on the pre-, interim, and posttests, as well as gains and gain differences, are reported in Table 1. Mean language age scores were summarized in

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Insert Table 1 about here

Table 2 and presented graphically in Figure 1. Raw scores were employed in the statistical analyses to maximize precision while language age equivalents were used in the graphic presentation to facilitate comparisons between subtests. (The types of subtests on the ITPA are described in Table 3.)

Insert Tables 2 and 3 about here

The analysis of variance is contained in Table 4. An examination of that table reveals that significant results were obtained for the main

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Insert Table 4 about here

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effects of years of PLDK exercises and for ITPA subtests, as well as for the interactions between years and subtests, however, as raw scores were utilized these are essentially meaningless. There were no significant results reflecting differences between PLDK groups nor for the interaction between PLDK groups, years, and ITPA subtests. Thus, using raw score data the analysis of variance failed to support the prediction that the use of the PLDK would have a positive overall effect on ITPA total language age.

Figure 1 portrays the ITPA profiles for both the experimental and control groups for the three testing sessions. From an examination of Figure 1, it can be seen that the profiles are similar for the pre- and interim test results. While both the experimental and control groups

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Insert Figure 1 about here

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gained significantly overall and for most subtests, the slight differences between the groups' total score gains were not significant (see Table 4). Posttest profiles, when compared with those for the interim and pretest results, again show significant overall gains while remaining essentially similar in configurational pattern. However, it will be noted that the experimental group achieved significant gains from interim to posttesting (1966-67) on the Vocal Encoding and Auditory-Vocal Sequencing subtests ($p < .05$). On the Vocal Encoding subtest, the experimental group gained 15 months more than did the control group. On the Auditory-Vocal Sequencing subtest, the experimental group gained a total of 27 months (1965-67) as compared to the control group's gain of 23 months. As will be seen in Table 5, which consists of a summary of the values obtained on the *t* tests comparing the two samples' performance on each of the ITPA

Insert Table 5 about here

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subtests, the only other subtest on which the experimental group's performance evidenced a positive trend, though slightly below the level required for statistical significance, was Auditory-Vocal Association.

All other t test values were far below the level required for significance.

Discussion

First, it should be noted that the findings of this investigation are consistent with the findings of Dunn, Neville, Bailey, Pochanart, and Pfost (1967) in that there were no significant differences found in overall language age gains between the total experimental group and the control group. The present findings are also similar to those reported by Gray and Klaus (1965) who noted that culturally deprived children tend to score low on the (pretest) encoding and automatic tests, and tend to have a relatively adequate performance on Auditory-Vocal Sequencing.

Second, as in Dunn and Mueller (1967), the control group's profiles for the three test periods are quite similar. This reinforces their observation that the regular language arts program, taught by regular elementary teachers, in regular self contained classrooms, is moving the children forward with commendable evenness in all areas. The data reported here, as might be expected, also suggests that the patterns of language skills of disadvantaged Negro children do not change appreciably during the first two years of school, although one might detect a trend for greater gains in auditory and vocal skills. With an initial mean IQ of 89 for the control group, the predicted overall gain in language age, in terms of MA growth, for the 8 month pre-interim test period would be approximately 7 months. Predicted gain for the 20 month pre-post test period would be 18 months. The obtained gains were 8 and 17 months, respectively. With an initial mean IQ of 87 for the

experimental group, the predicted overall gain in language age for the 8 month pre-interim test period would be approximately 7 months and for the 20 month pre-posttest period would be approximately 17 months. Interestingly enough, however, the obtained gains were 11 and 21 months, respectively. While these inter-group differences were not statistically significant, the positive trend would contraindicate PLDK discontinuence.

Examination of Figure 1 also reveals a slight tendency for the experimental group posttest profile to differ in form from that for the pretest. Vocal Encoding has supplanted Visual-Motor Association and Auditory-Vocal Sequencing as the strongest area. The latter also made statistically significant gains. While only Vocal Encoding and Auditory-Vocal Sequencing subtests show a significant differential gain, the profile appears to be somewhat more audio-vocal oriented.

Third, although the experimental subjects who had two years experience with PLDK gained significantly in expressive language, this result is not consistent with the stated purpose of PLDK which is to teach all language skills. It is, however, consistent with the trends previously observed by Ensminger (1966) and Dunn and Mueller (1967). The three hypotheses advanced by the later study are also applicable here: (1) inequalities in the educability of the children on the various linguistic skills measured by the ITPA; (2) differential sensitivities and reliabilities of the ITPA subtests; and (3) unequal or inappropriate emphases on the various language functions in the PLDK program. With respect to the second hypothesis, it is noted that the ITPA currently is being revised to provide greater diagnostic sensitivity. In terms of the third hypothesis, it should also be noted that PLDK Level P (Dunn,

Horton, and Smith, 1968) has been designed with several specific language skills in mind (e.g., Auditory Vocal Automatic), thus possibly overcoming the shortcomings of Levels #1 and #2.

The differential effectiveness of the PLDK lessons do not reflect an unsatisfactory state of affairs. Although the broad purpose of PLDK is to stimulate overall language development, the activities and lessons were designed to emphasize thought and expression. Encouragement of expression in talking time is fundamental to that purpose. The significant gains in vocal encoding suggests that they are successful.

Disadvantaged children are especially weak in the grammatical and syntactical aspects of standard English. Bernstein (1961) holds that the major role of speech is to sensitize the child to the demands of his environment. He postulates two language forms which he designates as restricted and elaborated language. The sterile and rigid structure of the lower class restricted language serves to imprison the child in his limited social culture. He must develop the more richly structured elaborated language of the middle socioeconomic class if he is to achieve the optimum intellectual performance that can be associated with his measured intelligence. It is in this area of expressive language that the PLDK provides its most significant impact.

Summary

The differential effects were studied of the final revision of Levels #1 and #2 of the Peabody Language Development Kits on the ITPA profiles of young disadvantaged Negro children. Contrasted with 90 control subjects were 90 experimental subjects who received a daily 30-minute oral language stimulation exercise from the PLDK for each day

in the school year. The pre- and interim testing was spaced by 8 months while the pre- and posttests were administered 20 months apart. The study took place in schools located in a Southern inner-city where over three-quarters of the pupils were of the Negro race.

The program was differentially effective only in the vocal expressive and auditory vocal sequential components of the ITPA as measured by the Vocal Encoding and Auditory-Vocal Sequencing subtests. While there were gains in other vocal auditory areas these are associated equally with PLDK and regular classroom programs. This suggests that PLDK lessons should be coordinated with other grammatical exercises in order to achieve maximum improvement in the major oral language defects of the disadvantaged children of the type studied in this investigation.

References

Berstein, B. Social class and linguistic development: A theory of social learning. In A. H. Halsey, J. Fraud, & C. A. Anderson (Eds.), Education, economy, and society. New York: Free Press of Glencoe, 1961.

Carter, J. L. The effect of a language stimulation program upon first grade educationally disadvantaged children. Education and Training of the Mentally Retarded, 1966, 1, 169-174.

Dunn, L. M., & Mueller, M. The effectiveness of the Peabody Language Development Kits and the Initial Teaching Alphabet with disadvantaged children in the primary grades: After one year. IMRID Monographs, 1966, No. 2. (George Peabody College, Nashville, Tenn.)

Dunn, L. M., & Mueller, M. Differential effects on the ITPA profile of the experimental version of Level #1 of the Peabody Language Development Kits with disadvantaged first-grade children. IMRID Papers and Reports, 1967, IV (6).

Dunn, L. M., Neville, D., Bailey, C. F., Pochanart, P., & Pfost, P. The effectiveness of three reading approaches and an oral language stimulation program with disadvantaged children in the primary grades: After one year. IMRID Monographs, 1967, No. 7.

Dunn, L. M., Nitzman, M., Pochanart, P., & Bransky, M. Effectiveness of the Peabody Language Development Kits with educable mentally retarded children: A report after two and one-half years. IMRID Papers and Reports, 1968, V (15).

Dunn, L. M., & Pfost, P. The effectiveness of the Peabody Language Development Kits and the Initial Teaching Alphabet with

disadvantaged children in the primary grades: After two years. IMRID Monographs, 1967, No. 6.

Dunn, L. M., Pochanart, P., Pfost, P., & Bruininks, R. H. The effectiveness of the Peabody Language Development Kits and the Initial Teaching Alphabet with disadvantaged children in the primary grades: A report after the third grade of the Cooperative Language Development Project. IMRID Monographs, 1968, No. 9.

Dunn, L. M., Horton, K. B., & Smith, J. O. (Eds.) Peabody Language Development Kit, Level P. Circle Pines, Minn.: American Guidance Service, 1968.

Dunn, L. M., & Smith, J. O. (Eds.) Peabody Language Development Kits: Levels #1, #2, and #3. Circle Pines, Minn.: American Guidance Service, 1965, 1966, and 1967.

Ensminger, E. E. The effects of a classroom language development program on psycholinguistic abilities and intellectual functioning in slow-learning and borderline retarded children. Unpublished doctoral dissertation, University of Kansas, Lawrence, 1966.

Forgnone, C. Effects of group training in visual perception and language development upon the visual perception and psycholinguistic abilities of retarded children. Unpublished doctoral dissertation, George Peabody College, Nashville, Tenn., 1966.

Gibson, R. C. Effectiveness of a supplemental language development program with educable mentally retarded children. Unpublished doctoral dissertation, University of Kansas, Lawrence, 1966.

Gray, S., & Klaus, R. A. An experimental preschool program for culturally deprived children. Child Development, 1965, 36, 887-898.

Keehner, U. A comparative study of linguistic and mental abilities before and after a developmental-remedial language program with mentally retarded children. Unpublished masters thesis, University of Wisconsin, Madison, 1966.

Lindquist, E. F. Design and analysis of experiments in psychology and education. Boston: Houghton Mifflin, 1953.

McCarthy, J. J., & Kirk, S. A. The Illinois Test of Psycholinguistic Abilities--An approach to differential diagnosis. American Journal of Mental Deficiency, 1961, 66, 399-412.

Milligan, J. L. A study of the effects of a group language development program upon the psycholinguistic abilities of kindergarten children. Unpublished doctoral dissertation, University of Kansas, 1966.

Mueller, M. W. A comparison of the empirical validity of six tests of ability with young educable retardates. IMRID Monographs, 1965, No. 1. (George Peabody College, Nashville, Tenn.)

Mueller, M. W., & Dunn, L. M. Effects of Level #1 of the Peabody Language Development Kits with educable mentally retarded children--An interim report after 4 1/2 months. IMRID Papers and Reports, 1967, IV (5).

Footnote

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Table 1

Mean Raw Scores for Experimental and Control Groups on the Illinois Test of Psycholinguistic Abilities Subtests

Subtest	Group	Means (In Raw Score Points)								
		Raw Scores			Gains			Differences in Gains		
		1965	1966	1967	1965	1966	1967	1965	1966	1967
1. Auditory Decoding	Exp.	16.49	19.66	22.57	3.17	2.91	6.08	-0.01	1.52	1.51
	Cont.	17.41	20.59	21.98	3.18	1.39	4.57			
2. Visual Decoding	Exp.	10.53	12.47	13.79	1.93	1.32	3.26	0.75	-0.56	0.19
	Cont.	11.03	12.22	14.10	1.19	1.88	3.07			
3. Auditory-Vocal Assoc.	Exp.	12.94	16.72	19.00	3.78	2.28	6.06	0.76	0.12	0.88
	Cont.	13.13	16.16	18.31	3.02	2.16	5.18			
4. Visual-Motor Assoc.	Exp.	12.74	15.46	17.13	2.71	1.68	4.39	0.62	-0.45	0.18
	Cont.	13.49	15.58	17.70	2.09	2.12	4.21			
5. Vocal Encoding	Exp.	13.58	18.08	20.79	4.50	2.71	7.21	1.66	1.03	2.69
	Cont.	14.23	17.08	18.76	2.85	1.68	4.52			
6. Motor Encoding	Exp.	12.29	12.37	13.84	0.08	1.48	1.56	-0.21	0.54	0.33
	Cont.	11.88	12.17	13.10	0.29	0.93	1.22			
7. Auditory-Vocal Auto.	Exp.	6.98	9.73	11.90	2.76	2.17	4.92	0.59	-0.26	0.33
	Cont.	7.16	9.32	11.74	2.17	2.42	4.59			
8. Auditory-Vocal Seq.	Exp.	19.70	23.83	26.03	4.13	2.20	6.33	2.08	-0.66	1.42
	Cont.	21.37	23.42	26.28	2.06	2.86	4.91			
9. Visual-Motor Seq.	Exp.	11.62	13.91	15.84	2.29	1.93	4.22	0.61	-0.38	0.23
	Cont.	12.12	13.80	16.11	1.68	2.31	3.99			
10. Total	Exp.	116.87	142.23	160.89	25.36	18.66	44.02	6.84	0.92	7.76
	Cont.	121.82	140.34	158.08	18.52	17.74	36.26			

Table 2

Mean Language Age Scores for Experimental and Control Groups on the Subtest of the Illinois Test of Psycholinguistic Abilities

Subtest	Group	Means (In Months)								
		Language Age Equivalents			Gains			Differences in Gains		
		1965	1966	1967	65-66	66-67	65-67	65-66	66-67	65-67
1. Auditory Decoding	Exp.	57	68	77	11	9	20	0	6	6
	Cont.	60	71	74	11	3	14			
2. Visual Decoding	Exp.	66	70	80	4	10	14	0	0	0
	Cont.	66	70	80	4	10	14			
3. Auditory-Vocal Assoc.	Exp.	59	73	82	14	9	23	3	1	4
	Cont.	59	70	78	11	8	19			
4. Visual-Motor Assoc.	Exp.	65	73	82	8	9	17	-5	1	-4
	Cont.	65	78	86	13	8	21			
5. Vocal Encoding	Exp.	68	83	107	15	24	39	4	15	19
	Cont.	68	79	88	11	9	20			
6. Motor Encoding	Exp.	60	60	70	0	10	10	0	5	5
	Cont.	60	60	65	0	5	5			
7. Auditory-Vocal Auto.	Exp.	51	64	73	13	9	22	4	-4	0
	Cont.	51	60	73	9	13	22			
8. Auditory-Vocal Seq.	Exp.	67	84	94	17	10	27	9	-5	4
	Cont.	71	79	94	8	15	23			
9. Visual-Motor Seq.	Exp.	64	72	81	8	9	17	0	0	0
	Cont.	64	72	81	8	9	17			
10. Total	Exp.	62	72	81	10	9	19	3	1	4
	Cont.	64	71	79	7	8	15			

Table 3

Types of Subtests in the Illinois Test of Psycholinguistic Abilities

Subtest Number and Name	Ability Measured and Item Example
A. Decoding (reception)	Ability to understand the spoken word.
1. Auditory Decoding	Example: Do people sleep? Response is simply "yes" or "no."
2. Visual Decoding	Ability to classify pictures from memory. Example: Subject is shown a stimulus card such as a picture of a table which is then removed. His task is to find a picture of an object of the same classification from a group of four.
B. Association (relationships)	Ability to reason by analogies.
3. Auditory-Vocal Association	Example: Soup is hot; ice cream is ___ __.
4. Visual-Motor Association	Ability to relate visual symbols in a meaningful way. Example: The subject selects from among four pictures the one which "goes with" a given stimulus picture, such as "sock" goes with "shoe."
C. Encoding (expression)	Ability to express ideas in spoken words.
5. Vocal Encoding	Example: The subject is asked to describe a simple object such as a "ball."
6. Motor Encoding	Ability to express one's ideas in meaningful gestures. Example: The subject is shown a picture of a "violin" while the examiner asks: "Show me what you would do with this."
D. Automatic (grammar)	Ability to express future linguistic events from past experiences.
7. Auditory-Vocal Automatic	Example: "Here is an apple; here are two _____."
E. Sequential (memory)	Ability to repeat correctly a sequence of symbols.
8. Auditory-Vocal Sequencing	Example: Subject is asked to repeat a set of digits such as 8-3-2-5-1.
9. Visual-Motor Sequencing	Ability to reproduce a sequence of visual stimuli from memory. Example: The subject observes the order of a series of pictures or geometric forms for five seconds, the pictures are then mixed, and the subject is asked to rearrange them back in their original order.

Table 4

Analysis of Variance of ITPA Subtests Scores, 1965, 1966, and 1967

Source	df	Mean Square	F Ratio	P Values
PLDK Groups (A)	1	0.091	---	
Error	178	170.020		
Years (B)	2	8078.672	546.206	<0.001
A X B	2	89.906	6.078	<0.010
B X Error	356	14.791		
ITPA Subtests (C)	8	9536.914	463.399	<0.001
A X C	8	28.939	1.406	
C X Error	1424	20.580		
B X C	16	103.244	10.289	<0.001
A X B X C	16	13.911	1.386	
BC X Error	2848	10.034		
Total	4859	38.722		

Table 5

t Test Values Comparing Experimental and Control Groups' Performance on Individual ITPA Subtests

Year	ITPA Subtests									
	1 ADe	2 VDe	3 AVAs	4 VMAs	5 VEn	6 MEn	7 AVAu	8 AVS	9 VMS	10 Total
Pretest 1965	-1.21	-1.02	-0.29	-1.26	-0.96	0.77	-0.31	-2.04**	-0.76	-0.85
Interim 1966	-1.29	0.52	1.13	-0.21	1.22	0.35	0.71	0.49	0.23	0.33
Posttest 1967	0.75	-0.78	1.60	-1.02	2.17	1.25	0.23	-0.25	-0.46	0.46

**$t_{.975/60} = 2.00$

*$t_{.95/60} = 1.67$

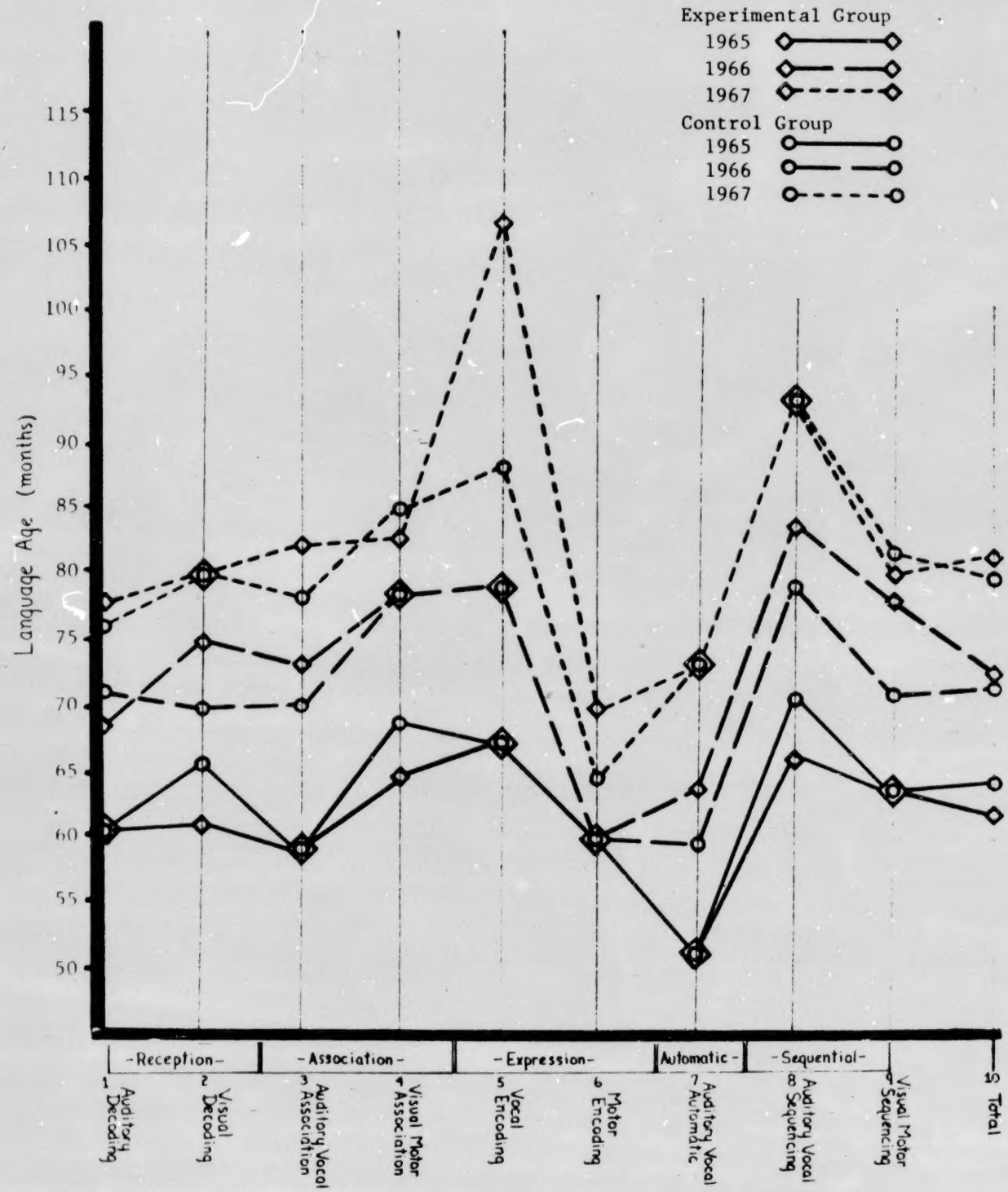

Figure 1. Mean Language Age Scores for Experimental and Control Groups on the Subtests of the Illinois Test of Psycholinguistic Abilities